WEST Search History

DATE: Thursday, May 29, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L7	5219788.pn.	1	L7
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L6	L4 same (substrate or integrated circuit or wafer or device or LCD)	20	L6
L5	L4 same ((substrate or integrated circuit or wafer) with dielectric)	3	L5
L4	(ARC or antireflect$5 or antihalat$5) with (organosilicon or silsesquioxane)	57	L4
L3	L1 and ((substrate or integrated circuit or wafer) with dielectric)	8	L3
L2	L1 same ((substrate or integrated circuit or wafer) with dielectric)	1	L2
L1	(ARC or (antireflective coat$3)) with (organosilicon or silsesquioxane)	25	L1

END OF SEARCH HISTORY

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$(HSiO_{3/2})_n$

L6: Entry 19 of 20 File: DWPI Sep 2, 1992

DERWENT-ACC-NO: 1992-293691
DERWENT-WEEK: 199907

TITLE: Patterned conductive layer prodn. by photolithography - using barrier layer between antireflective layer and photoresist

INVENTOR: ABERNATHEY, J R; DAUBENSPECK, T H ; LUCE, S E ; POLEY, D J ; PREVITI-KELLEY, R A ; VIENS, G P ; YOON, J H ; PREVITI-KELLY, R A

PATENT-ASSIGNEE: INT BUSINESS MACHINES CORP (IBMC), IBM CORP (IBMC)

PRIORITY-DATA: 1991US-0661561 (February 25, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 501178 A1	September 2, 1992	E	008	G03F007/09
JP 2846761 B2	January 13, 1999		008	G03F007/11
US 5219788 A	June 15, 1993		006	H01L021/443
JP 07297093 A	November 10, 1995		007	H01L021/027
EP 501178 B1	June 18, 1997	E	007	G03F007/09
DE 69220393 E	July 24, 1997		000	G03F007/09

DESIGNATED-STATES: DE FR GB DE FR GB

CITED-DOCUMENTS:DE 3435750; EP 289174 ; EP 379924 ; US 4810619

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 501178A1	February 4, 1992	1992EP-0101765	
JP 2846761B2	January 17, 1992	1992JP-0026236	
JP 2846761B2		JP 7297093	Previous Publ.
US 5219788A	February 25, 1991	1991US-0661561	
JP 07297093A	January 17, 1992	1992JP-0026236	
EP 501178B1	February 4, 1992	1992EP-0101765	
DE 69220393E	February 4, 1992	1992DE-0620393	
DE 69220393E	February 4, 1992	1992EP-0101765	
DE 69220393E		EP 501178	Based on

INT-CL (IPC): G03F 7/09; G03F 7/11; G03F 7/36; H01L 21/027; H01L 21/443; H01L 21/465

ABSTRACTED-PUB-NO: EP 501178A
BASIC-ABSTRACT:

A patterned conductive layer is formed by: (a) applying, onto a substrate surface, a conductive layer, a metal nitride antireflective layer and then a barrier having a silicon-contg. component (e.g. a spin-on glass selected from alkoxysilanes, methylphenyl silsesquioxane and amino silsesquioxane); (b) applying, onto the barrier layer, a resist layer contg. a photoinitiator which generates acid, gps. on

exposure to radiation, the barrier layer inhibiting reaction between the acid gps. and the antireflective layer; (c) exposing and developing the resist to uncover barrier layer portions in an image; and (d) removing the uncovered barrier layer portions and the underlying antireflective layer and conductive layer portions to form a patterned conditive layer.

Also claimed is a method of patterning a conductive layer by carrying out process.

USE/ADVANTAGE - The process is for patterning metallisation layers in IC mfr.. The process prevents interaction between the resist and the antireflective film to allow reliable submicron photo-imaging and achieves photolithographic low reflectivity. Photo-rework processing can be carried out without sacrificing the antireflective layer and the antireflective material is easily applied and can be removed using conventional techniques.

ABSTRACTED-PUB-NO: EP 501178B
EQUIVALENT-ABSTRACTS:

A method patterning a conductive layer comprising the steps of: forming a conductive layer to be patterned on a surface of a substrate; applying a metal nitride antireflective layer over the surface of said conductive layer; forming a barrier layer which includes a silicon-containing component to the surface of the antireflective layer; applying a resist layer to the barrier layer, the resist containing a photoinitiator which generates acid groups upon exposure to radiation, the barrier layer inhibiting interaction between the antireflective layer and the acid groups generated during exposure of the resist; exposing and developing the resist to uncover portions of the barrier layer in a patterned image; removing the uncovered portions of the barrier layer and removing corresponding underlaying portions of barrier layer and removing corresponding underlying portions of both the antireflective layer and the conductive layer to form a patterned conductive layer.

US 5219788A

Method comprises (a) forming a conductive layer on a substrate, (b) applying a metal nitride antireflective layer, (c) forming a barrier layer having an Si-contg. component, (d) applying a resist layer contg. a photoinitiator which generates acid gps. upon irradiation, the barrier layer inhibitng interaction between the antireflective layer and generated acid gps., (e) exposing and developing the resist to uncover portions of the barrier layer in an image and (f) removing the uncovered portions of the barrier layer and corresp. underlying portions of both the antireflective and conductive layer to form a patterned conductive layer. Pref. antireflective layer is TiN and the barrier layer is Si or spin on glass selected from alkoxy silanes, methyl phenyl silsesquioxane and amino silsesquioxane, or is SiO2. The conductive layer is sputtered Ti, further coated with a sputtered Al/Cu/Si layer.

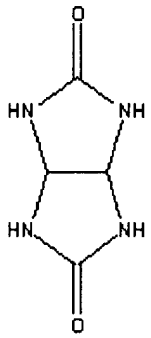
ADVANTAGE - Interaction between resist and antireflective cap film is prevented, thus allowing reliable sub-micron photoimaging. The method allows low reflectivity photolithography to be achieved. Cap material is easily applied and can be removed conventionally.

CHOSEN-DRAWING: Dwg.1A/2 Dwg.0/2 Dwg.0/2

DERWENT-CLASS: E11 G07 L03 P84
CPI-CODES: E05-E01; E05-E03; E31-H05; E31-P03; G06-A; G06-A08; G06-D06; G06-E04; G06-G; L04-C06;

Glycoluril [496-46-8]

Synonyms: Acetylene diureine; Acetyleneurea; Glycoluril; Tetrahydroimidazo[4,5-d] imidazole-2,5-(1H,3H)-dione;



Formula	$C_4H_6N_4O_2$	Molecular Weight	142.117
CAS RN	496-46-8	Melting Point (°C)	
ACX Number	X1031076-8	Boiling Point (°C)	
Density		Vapor Density	
Refractive Index		Vapor Pressure	
Evaporation Rate		Water Solubility	
Flash Point (°C)		EPA Code	
DOT Number		RTECS	
Comments			

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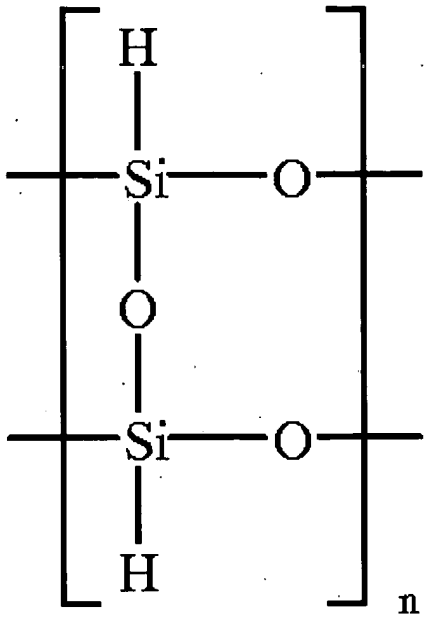

Typically, n has a value of four or more. By w
stration, when n is four, a bond arrangement
esquioxane cubical octamer is depicted below.